Iowa Power Fund Board - Due Diligence Committee (DDC)
Meeting Minutes
June 25, 2008

Department of Economic Development, Conference Room
Des Moines, IA

Call to Order

Roya Stanley, Chair, called the meeting to order at 1:05 pm

Roll Call

Member	Present	Absent
Tom Barton	X	
Franklin Codel	Conf. Call	
Ted Crosbie		X
Vern Gebhart		X
Patricia Higby	X	
Fred Hubbell	X	
William (Curt) Hunter	Conf. Call	X
Roya Stanley	X	

Also in attendance from the OEI, Governor's Office: Jennifer Wright, Rob Grayson, Brian Crowe, Deborah Svec-Carstens (associate in general counsel, Governor's Office), Lucy Norton (Iowa Power Fund Board) and Mary Lewis (Recording Secretary).

Approval of Agenda

Ms. Stanley asked for a motion to accept the agenda. Ms. Higby moved, Mr. Barton seconded that the agenda be approved. Motion passed on voice vote.

Approval of Minutes

Ms. Stanley asked for a motion to accept both the April and May minutes. April Minutes were approved after corrections were made. Citing several corrections needed to the May Minutes, those minutes were tabled and DDC members were asked that corrections be sent to Mary Lewis by Friday, June 27. Corrections will then be made and a revised draft of the minutes will be sent electronically to committee members for review.

Chair's Remarks

None

Full-Application Review

08-03-1094 Presentation

Why algae for bio-fuels?

They're the fastest growing plants.

They absorb more CO_2 than any other plant.

They absorb a wider spectrum of light energy than any other plant.

We can control the carbon chain length for different fuel outputs by changing species. This gives us tremendous flexibility to decide what kind of fuel we would like to produce. This type of production does not require good agricultural land which is needed to produce food. These are the reasons we selected algae.

Principal scientist and Valcent CEO is Glenn Kertz

Why did we choose Valcent's High Density Vertical Bioreactor?

They have the highest yields ever – over 30,000 gals/acre/year of biofuel. Basically, it's a giant solar collector. They have the finest algae lab available. And they offer a modular design which allows for unlimited scalability. Those are the reasons we selected Valcent.

How the bioreactor works.

Nutrients from urban wasted produced from vermi-composting, an essential part of recycled material. CO_2 absorbed thru membrane from direct introduction of the solution. Another novel approach, that we have a gas permeable membrane. When we reach peak density in the solution of algae, we will harvest 50% of it and that is happening continuously. Algae are extracted via floatation or centrifuge and the water is sterilized and reintroduced to the operating system. So there's no waste of water coming from this. It's a sophisticated computer control system and it uses a geothermal system to achieve optimal temperatures.

This project is complimentary to the Great Plains Renewable Energy Algae project. The Great Plains project was optimized before carbon dioxide capture. They're targeting about 6,000 gals/acre/year of bio-fuel. Ours is not targeting carbon dioxide, although it will actually capture more, and we're targeting 30,000 gals/acre/year. There are citing limitations within theirs. It's attached to either an ethanol plant or a power plant while ours is free standing. They're targeting an extraction efficiency at around 70% where as we're targeting 100%.

What would PF money be doing or accomplishing?

Phase 1 Pilot Project; we're just looking at getting set-up to a point where we can do a commercial rollout which is Phase 2. The first three years would be getting this Pilot Project in place.

Phase 2 would be the initial roll-out of a commercial plant, a 100 acre bioreactor which would be commercial scale so that we would actually be able to prove that this is commercially viable.

Phase 3 we would look at wide scale roll-out of the business model which would probably be eighteen months after that.

The Valcent High Density Algae Bioreactor is a proven technology for growing algae. That's why it's worth purchasing and not inventing. Now, we need a cost effective extraction process, to take the raw materials for the biofuels and get them out of the algae. To date, nobody has done that. We feel that this is the single, most important step

This project requires an algae bioreactor in order to establish the species and settings needed in Iowa. We need to make this work in our climate, provide the material for perfecting extraction, and finally, establish costs for low cost geothermal systems. One of the key elements of this whole thing is cost so we've got to get the cost down and we're looking at a more advanced geothermal technology which will bring cost down a lot.
All bricks and mortar budget items have been removed from the proposal budget. At the time of writing our first proposal budget, we were unaware that the Power Fund did not cover these costs.
The algae bioreactor has been designed to be fully scalable through a modular approach. It's scalable from very small to very large using an incremental expansion by adding modules. This is particularly important because it means the producer can have modules of say, a quarter acre to an acre in size, and if something went wrong with those modules, it wouldn't affect the rest of the production. So the modular approach means you isolate elements and you don't have one, single huge system. The ideal situation would be a cost effective operation at all sizes, aligning wide spread deployment across Iowa.
To address the issue of adding additional funding for salaries, what we've done in this application, now, is shifted if you add the salaries and the accounting costs, which is included because we're bringing in a lot of expertise from the Valcent people. Matching salaries and consulting costs have increased because of that expertise.
Why is this project needed in Iowa and why Fairfield is the ideal location?
It's an emerging technology with the potential to make Iowa fuel independent. If we can get it working, we can grow our own fuel and we can grow fuel for ethanol, for biodiesel, for aviation fuel, whatever is needed.
Iowa needs to grow this expertise now. The reason for that is, if Iowa wants to be in the forefront of this field, then we need to grow the expertise in this specific area. That's why we've chosen it as part of a university because we'll have considerable exposure to students. This will be a part of a lot of programs for Ph.D. and Masters level students. The city of Fairfield is committed to becoming a model for transformation to sustainability.
Maharishi University of Management has emerged as a leader amongst universities in the field of sustainability. We're the first university to offer a four year undergraduate degree program in sustainable living and we're now expanding on that, we have a masters program, a sustainable MBA, and it is our fastest growing area. We would like to pull this project into that center.

Q: Is this something that anyone has doubt about?
A: It's not in doubt. What hasn't been done is that it hasn't been applied in a specific field. The technologies exist, we have expertise in them, we would like to apply it now and actually make that into a turn key solution for bio-fuels.
Q: I didn't have a clear picture in my mind about this project. I saw it as a vessel and then as an open pond. Is it an open pond or a greenhouse?
A: The one hundred acres in the proposal would be for a green house to grow the algae on the membrane bags.
Q: I have issues with your budget items listed for your director and sr. chemist?
A: Budget line items reflect the total three years during the project. The years are not separated.

Q: Why did you choose someone with who has left organic chemistry to be your Senior Organic Chemist?
A: Dr. Ivan Stoylov is our senior chemist, bringing with him over 20 years of experience. We are contracting with the doctor's company and the personnel that you question will, in fact, be the doctor's on-site assistant.
Q: How is the project director chosen?
A: The project director was chosen by the panel who decided to do this project. Since I've been involved in similar kinds of projects, business startups and such, and have managed other projects where I'm accountable to a board, and have succeeded in these cases, they felt that I was the person who makes sure this works.
Q: Are you familiar of the money through the farm bill? They are doing bio-refineries
A: We would be very delighted to explore that.
Q: So, who's in charge of the project? Is it Biomed, Valcent, Vertigrow?
A: It would be Maharishi University of Management. Biomed and Valcent are coming in as sub-contractors.
Q. Then, if you're successful with the pilot, what is the next decision and who would makes it?
A. Well it would be a group decision. While Valcent feels confident that their processes are safeguarded and that no one can steal their technology, they do have an agreement for rolling this out through Global Green Solutions whose one of the partners in their organization. So this would have to be a joint thing in terms of implementation.
Q. So, if I'm Valcent, giving you the algae, essentially, then the next phase is the bio-reactor. Who determines where that will be and how do people make money on it?
A: Well, it's likely to be in Fairfield. We have a group of interested parties in this at this stage. No one's going to commit money until they see that we've made some progress. It's not written in stone but I'm 99% sure because we'll have all the expertise from the pilot to roll out the commercial product.
Q: Once you get to the commercial product, how many acres would you think that is?
A: As we've said, the commercial size should vary depending on the need. So, depending on what you're trying to supply, a farm versus a community, the scale would be in accordance with the supply need.
Q: How heavy would that be? I'm wondering if this would be appropriate for rooftops and not taking land.
A: Yes, it would be ideal for rooftops. In fact, Valcent designed it specifically with that in mind.
Q: What role would the University play in ownership of phase 2 and 3 assuming phase 1 is successful?
A: The University would take a very small ownership/section but at the moment,. Actually, we haven't discussed that yet.
Q: What would you do with the facilities if Phase 1 wasn't successful?
A: Well, the facilities wouldn't be that big. We'd have one quarter acre investment in the green house and I'm sure the university would be able to use that.
Q: Is the acreage currently owned by the University?
A: I think it's about one and a quarter acres under green house now and about 15 acres not under green house that are producing vegetables.
Q: Would the reactor be on university land?
A: No, they don't have enough land for that.

Q: What is the competitive edge for Iowa that other states don't have.
A: Vermi-composting from feed stock creates a good, organic quality fertilizer. That's number one. Number two, Iowa has reasonable sunlight pattern for the seasons in Iowa. Also Iowa has a very good history of bio-fuels. That's why we want to grow our expertise here. Yes, you could build far away like California, but transporting fuel wouldn't be cheap so growing locally is a great benefit.
Q. Assuming pilot works, who's the primary beneficiary of the scale-ability in terms of gaining from it in the long term?
A: Valcent and Global Green Solutions, a combination of those two, publicly listed companies, and a third likely candidate would be an Iowa based company because of that grown expertise.
Q: But you don't consider them applicants per se, that this is a demonstration project by the university that stands on its own. These organizations must be aware of that you're making this application? But they're not driving it, is that a fair characterization?
A: Yes, that's a fair characterization. They've agreed to participate but they are not expecting…they're not asking us to sign anything and we're not asking them to sign anything.
Q: What about the water supply? It looks like it's a huge part of this.
A: We will be using huge amounts of water; however, we won't be wasting it. The algae actually does use some of the water, it gets bound to the biomass of the algae but not a huge amount. But you will need ongoing amounts of water which is why the water we will use will be recycled.
Q: What happens to your project if the Power Fund doesn't give you much money or any money?
A: Well, we could scale the project down if we don't get as much. I'm sure that would be a possibility; probably not ideal. If we get no money, we would probably be applying to the USDA. We will be anyway.
Q: How will you be making your results known to the public? Are you going to publish a paper?
A: Our plan is to publish our research. We feel that this is a very important point and we would like to do more than that. We would actually like to invite participating institutions to a conference we will hold to make these results public and to discuss ways of sharing this knowledge and getting it widespread.

Yes – Higby, Codel but the Power Fund should urge other funding , Hunter and has asked for a technical review, Hubbell with two conditions 1) If project is funded and project goes to Phase 2, Power Fund would get paid back and 2) In Phase 2, project should be developed in Iowa, Barton also agreeing with Hubbell's conditions
Table –
No –
A new proposal will go forward to the Power Fund Board

08-03-1087 RA Presentation

Making Cities Sustainable

Our objective is to create a good demonstration model of what a city can do to target sustainability in all areas and sectors of a community. In doing so, we'd be institutionalizing that process to share with the State of Iowa.

Planning for Sustainable Cities

Support strategic planning – We began our strategic planning process about three months ago. We are well under way. We are very happy with how that is going. The foundation of a strategic planning process was very important because, if we're going to be serious about doing this as an entire community, we needed to get buy-in from all sectors of the community. We're very happy with all the areas that are willing to participate. We have members from our school board, from our manufacturers association, business leaders, many local experts, the university and interested citizens on this commission.

Conduct engineering studies – to measure a baseline of green house gases and energy usage within the community to have a start point to begin our measurements. We would also like to do a renewable energy study that would allow us to look at all the different options for renewable energy mixes along with our utility provider to see how we could provide more renewables into the mix to become a more sustainable community.

Develop Sustainable Learning and Visitors Center – What we would like to propose is that we take the knowledge that we learned through this process and all the good works and best practices that our community is going to go through, develop a curriculum and be able to offer that to cities throughout the state. Other countries, such as Spain and Sweden, have very strong initiatives among their municipalities and they cooperate and collaborate together to create more sustainable communities. We feel that the good work and the vision of this committee that the commission represents will only be successful if we get the entire state buy-in. The Sustainable Learning and Visitors Center could be a great foundation for that.

Strategic Planning for Sustainability

We are in the midst of our strategic planning process. We have a 10 year plan for moving towards energy independence and carbon neutrality that's comprehensive and as mentioned requires participation from all sectors of city for success.

(Passed out leaflet outlining some of the goals and objectives)

Planning to participate in the International Council of Local Environmental Initiatives (ICLEI)

ICLEI is an international organization that currently has 45 countries involved. They have a process that will help us create a green house gas inventory. We have applied to be a city pilot project for projects that they are doing for communities under 10,000 in our country. We've also received a proposal from a company out of Boulder, Colorado-Conergy-for a study of software continuous updates that would examine all sectors of energy use within the city. They will also run us through a study of renewable energy mixes. Collaboration with ICLEI and the proposal from Conergy would include landfill gasification, wind and solar. Scheduled to launch in July

Collaboration would include:

Sustainable Learning & Visitors Center

The idea of the Learning and Visitors Center is to expand on some programs that we've developed. Big Green Summer is a program, sponsored by a broad coalition of organizations across the state, for college age students and above. I think our oldest student is 70 but most students are in their twenties through forties. It helps create leadership amongst young people for sustainable development. The unique feature about our program is that it's a "live what you learn" program so it's a facilities driven program. In our program, you live in solar powered buildings that are made from

local materials and you operate those systems. This gives the students the opportunity to live and work in a sustainable environment and then go back to their communities to let them know that this does work.
Culmination of many community initiatives
Residential community featured in a lot of publications lately because of high performance design in sustainability.
Lead by example
Resource for transformation
Our facility would be able to support what's being taught in the classroom instead of becoming a contradiction to those lessons.
Focal point for community outreach & collecting best practices

Q: The funds would primarily go to the construction of the sustainable learning center, correct?
A: Correct, yes. Actually, there is a breakdown. Some funds would go toward our strategic planning process and some funds would go towards our baseline measurements and then the bulk of those funds, yes, would go towards the construction of the center.
(Asked of fellow committee members)Q. Is that violating any of the guidelines toward drinking water investments by the Power Fund? A: Yes.
A: We had that conversation with Brian Crowe and we're well aware of that. We wanted to make this presentation to see if your thinking, in terms of those guidelines, had evolved in any way and would see the merits of something like this. Again, I would entertain any questions as to the value of this as a facility for state usage for training and teaching and is there any flexibility in that.
Q: It seems to me that your thinking in Phase 1 is backwards. To build a Visitors Center first? You might want to consider building the facility after you've done phases 2, 3 and 4 first.
A: It's a very fair comment and question. I think, to understand where Fairfield is right now, there are a number of demonstration projects that are ongoing already. This eco-village is probably five or six years old since the first homes were built and has been an attraction. There are a lot of people coming for a lot of "hands on" knowledge and The Big Green Summer Program. There's a lot that's going on now. It's taking place in different pockets of interest. What we're trying to do with the strategic planning process is bring our whole community into this. There are elements of our community that are completely uninvolved and uninformed in a lot of these areas. So the strategic planning process is really for Fairfield. We could see the value and the benefit of completing that strategic planning process and then instituting what we've learned in terms of best practices or what it is that we plan because any community that's getting started is going to have to start with planning. So we think we'll be ahead of anyone that's really getting started in this area anyway. We will have that planning process but I think that we already have the demonstrations up and running and we're not waiting for this process to be finished. This really is phase 1 of a larger scale facilities project. This phase 1 is just to do, really to handle the education programs that we already have that we don't have adequate facilities for. So, as the program evolves, with the broader city, we'll probably look to do another phase that will demonstrate what the city has done. I appreciate what you're saying, you can't go ahead and brag about what you did before you did it. But what we're asking for here is really just to provide

facilities for programs that are going that don't have adequate facilities. I really feel that this is the great work of the next coming generation that the bulk of humanity is going to be involved in, in the next 50 to 100 years.
Q: Do you have a contingency plan for the structure assuming you don't receive money from the Power Fund Board?
A: Yes, we've cobbled together camping and other types of facilities but our older students are not very well suited to some of the facilities our younger students are more patient with as we've developed the program. We've gotten to the point where we restrict the number of students we can have in the program because of the facilities we have right now. We have a contingency which is to keep the program small until we get the facilities we need for the expansion.
Q: So let me be sure that I'm clear on this. I think that there are two different things going on here.1) that you'd like a facility for your ongoing program and our rules don't provide for that and that would be a problem and 2) you want to work in your community on a broader level to do strategic planning and an assessment and a resource study.
A: Correct. There are two separate elements. When we started the application process, we started with the latter. But when we thought about it, we thought about what the state was actually trying to accomplish through the Iowa Office of Energy Independence, we thought, well this educational component is going to become extremely important to the state. I don't know if that's really been attended to. I understand that there's been colleges, even state universities, that are starting to look at this right now but if it were not going to be attended to in an institutional way, we thought "why not". Why not just tie it into this vision of a sustainable learning center in Fairfield. I think what happened was that the vision got much bigger because of that. The original vision to have a facilities based institution for the intern program was probably going to satisfy the original purpose. What we said, from our side, we would like to be a contributor and a bigger player by taking what we're doing, rolling it into the sustainable learning center and then offering it to the state as a training center. That's the vision, the logic behind it.
C:… And I want to be clear too is that in the administrative rules that says "generally, bricks and mortar will not be funded by the Power Fund" so when we had our discussions, I said "here's an issue that needs to be addressed' but also my advice was to defend why you think this is important because the statement is "generally", not a steadfast "will not be".
A: And we appreciated that conversation because we recognize that we were going against your rules but we thought it would be something that we would certainly like to hear your feedback, face to face, on. I think it would provide a great value to the state.

Hubbell – I would make a motion that we should not fund the building however the strategic planning and other activities are a very good fit for something we should do so if they're interested in modifying their proposal, I'd be in favor of saying "Yes" to those factors but not including the building.
Barton – I second the motion.
Hunter – I was going to Table but now I agree with the condition.
Higby – I agree but I also want to mention that the new Farm Bill includes a rural energy self sufficiency initiative so perhaps your building could be funded through that.

It has money that has to be appropriated so it's not quite there yet but it sounds like it would be a good match for that.
Codel – I agree with the condition proposal as well.

Yes – Hubbell, Barton, Higby, Hunter, Codel
Table –
No –
A revised re-application excluding the building will go to the Power Fund Board.

08-04-1123 Presentation

RECUSAL – Franklin Codel

Renewable Energy Group
Began biodiesel business in 1996
Only large-scale vertically integrated biodiesel company

We cover everything from sales and marketing, construction, research, all the way through the entire supply chain and that's pretty unique.

Leading industry brands: SoyPOWER and REG-9000

SoyPOWER was our original biodiesel based off of purely soy and that's where our company started. We have now transitioned to other feed stocks and that's why we've gone to a 9000.

Largest marketing and dist network

Largest in the United States so our coverage is pretty extensive. So the feed stocks that we're looking at also need to be just as extensive.

The only large-scale company that is both a BQ-9000 accredited producer and a certified marketer.

That means we have really gotten a complete understanding both for what it takes to produce the fuel in a quality manner and distribute the fuel for a very large area. These are two key factors when we talk about the problem we're trying to solve. This is the experience that sets us apart. We are also headquartered in Ames, Iowa. We are an Iowa based company. There are facilities throughout Iowa. Some are under construction, some that are in the pre-construction stage, but all of them cover quite a variety of areas. The Iowa based plants, Ralston, Wall Lake, Newton, Washington, Farley and Algona, the production capacity of those facilities encompasses a little over 60% of all the biodiesel produced in the state. So when we talk about REG, we actually own just one plant within the state. The others are a network of plants that we support with management, with procurement of raw materials, selling their final product. All of those various activities.

REG's main product is REG-9000 branded biodiesel

We basically have three different brands; the 9001, 9005 and 9010. This is something that was very new to the market that we introduced and have gotten very good market acceptance of. These brands, unlike our SoyPOWER, are not based on a specific feed stock. This is based on the properties of the fuel. So regardless of what went into the fuel, the final cloud form will be between zero and two, ox civility and cetane numbers are none factors. There are other factors that will be consistent across the fuels. ASTM is the minimum standards and then REG's internal standards which are a little more rigorous than what you would see within ASTM. So we went out to the industry and developed this one and it took a while for the industry to accept the

fact that they don't have to know where this fuel is produced, they don't have to know what went into the fuel, they just care about the final quality.

Biodiesel research Center

We intend to construct a research center to support both our existing network of facilities and the overall industry. As a leading company in this, we have a history of doing projects that involve all of biodiesel.

With an investment from the Iowa Power Fund, this center will be built in Ames

The architectural work will be done by Shive-Hattery of Des Moines and the construction by Story Construction with 13 local sub-contractors. So we've made a very concerted effort to keep this local within the state. Overall project costs are about $2.1 million. We're asking for approximately 30% of that to come from the Iowa Power Fund. The remainder of that will come from renewable energy groups along with a contribution from the Iowa Department of Economic Development and the city of Ames. Both the city of Ames and the Iowa Department of Economic Development we have sent our applications through them and have already received approval from them.

Three key industry problems

First, the cost of raw materials (feedstock) has risen very quickly. We need to do research on new feed stock immediately in order to keep this industry continued. There are Biodiesel production facilities in Iowa today, fully built, ready to operate, everything is there, but they just can't afford to operate because of the feed stock.

Second, biodiesel is optimized to reduce emissions but the components in that also tend to retain moisture. That's a problem if you're trying to transport fuel or use pipelines for fuel. That's a very key factor for getting fuel used across the nation and also the acceptance in industries such as trucking or things like that were moisture can be a real problem.

Third is particulate matter. Whenever you're making fuels from organic oils, you may have little pieces of things in there that you just don't want. Measuring these things is very difficult because the tolerance level for these is extremely low in fuels. So you have to be able to measure them at remarkably low levels, and in some cases parts per billion, in an actual fuel and that's quite difficult.

What exactly are we giving back?

Project deliverable #1

ASTM D6751 specifications for biodiesel produced from a variety of alternative feedstock.

ASTM decides standards for industry

REG-9000 exceeds these expectations

Project deliverable #2

A computer model backed by lab data for retention of moisture in biodiesel.

Determine whether biodiesel should be blended at production site, the pipeline site or the customer terminal will be highly valuable to the fuels infrastructure and transportation industries.

Project deliverable #3

Measuring key impurities in biodiesel.

Minnesota enacted a biodiesel mandate but had to temporarily repeal that mandate when poor quality product entered the marketplace.

Soaps and sterol glucosides have been indentified as problem materials in biodiesel even at very low levels.

There are no existing test methods for measuring these impurities in biodiesel at these low levels using equipment readily available to well equipped production sites or typical 3rd party.

REG has access to feedstock and biodiesel, experiences in fuel.

Only company that has developed working methods for these impurities.

What is the return on investment?

Biodiesel contributes a substantial amount of money back to the State of Iowa. We are a very important industry for the state. The projections for the State of Iowa and the biodiesel industry for 2007, based on a certain production limit, was approximately $1 billion spent on raw materials and $2.4 billion added to the Iowa Gross Domestic Product, a large number of jobs, $97 million to consumers and $260 million back to the state in revenues. These numbers weren't quite achieved because we didn't hit the production target. The reason is we had the infrastructure we should have to meet that target but they just weren't operating. Also another key factor is that the income and the jobs are in rural Iowa. This is not necessarily a big city project. This is something that benefits our smaller communities.

Meets a lot of the Iowa Power Fund Goals

It increases the energy independence of the state.

Our environmental benefits from biodiesel are very well documented.

We can create biodiesels from oils leaving the proteins behind.

Oils used for production are typically industrial or high satured oils.

Biodiesel contains more energy than what it took to produce it.

We contain both a mixture of research and development and commercialization which are two things that the Iowa Power Fund clearly listed.

Q: So $175, 000 for laboratory demolition and construction. Would that be part of REG facility?
A: Actually, the bricks and mortar part of that is already owned by REG. The D/C is to do a laboratory within the actual building.
Q: How will you make money from this project?
A: REG would profit by having a better biodiesel industry. We need facilities to be operational and if they can't afford the raw material to make into fuels, they're not going to be operational. If they make fuels that can't be transported or have particular matter, they won't be accepted in the market place.
Q: How many plants are out there that aren't operating?
A: Industry studies cite around 20% but the biodiesel board isn't quite sure.
Q: Do you have an investment in those plants?
A: We have limited ownerships in some of those plants.
Q: Is there a reason why some of the industry isn't taking a lead in this project?
A: We're a young industry, very new and in a more well-developed industry we'd typically see this work being done by a national organization and in our industry we do have an organization but the amount of funding that's available to that is very minimal. We're not very well-developed as an overall industry.
Q: How do we get comfortable with the data being independent and credible?
A: The actual methods that we use to produce this will also be available. Also, our experience with commercialization, REG is leading the industry in production and marketing. We're well recognized for our technology and our accomplishments in that

area along with the co-developed processes. Third party validation is fairly easy when given the processes to test the results.
Q: What will happen with the space for the lab once the research is completed?
A: The portion of space being dedicated for this lab is a small portion of the overall facility. This would be continued to be used for ongoing research. If the concern is over if the Iowa Power Fund is investing in some equipment and building, you should review the dollar amount given up for salaries. We could switch those two categories around and have the Power Fund pay for salaries for researchers performing the work and REG pay for the actual D/C of the lab. They're very comparable.
Q: You're going to demolish part of an existing building?
A: We'll take part of the interior of the building, gut it, and take it from a commercial office space and create a laboratory space instead.
Q: Who are you leasing this portion of the building from?
A: REG is a partial owner of this building.
Q: So you'd lease it from yourself?
A: REG will be contributing that portion of the cost to this project. REG will receive no revenue from that portion of the building during the year of this project.
Q: Where did you get these numbers? Do you have an architect?
A: Yes, included in the full proposal there is bids from Story County Construction as well as the sub-contractor numbers.
Q: How big is the lab again?
A: About 4000 square feet, approximately.
Q: Is there a particular reason why you asked for a grant instead of a loan?
A: Typically, in a situation if it's a guaranteed loan, or something like that, you're going to be tied to other assets. Since this is a facility that is not wholly owned by a renewable energy group that would make it a little bit more difficult to figure out how to write such a proposal to use assets of a building that's not wholly owned. It was easier to write it as a grant.
Q: So a payback loan over five years isn't possible?
A: Yes, particularly if the loan is attached to the facility. The facility is owned by Hunziker Realty and REG and Hunziker have formed an LLC and REG leases back the building from the LLC.
Q: You lease the building on an annual basis?
A: Yes.
Q: Why do you want to do this research in-house rather than at one of the labs at one of the universities?
A: Again, it's back to building or people. If I switch over the D/C to salary I'd say the reason we're doing this is we're bringing in experts in biodiesel production, in the pre-treatment of oils. All of the various things REG has with the staff that is available there that you would not typically see in a university or research setting.
Q: What if you were to bring those people in as an endowed chair for a year at Iowa State University were they have that entire lab at their disposal? And they have graduate students and undergraduates that work for $10/per hour to do some of the work for you?
A: We feel our qualifications are what set us apart. That is not something that a typical student would be able to match. These are people that spend all day, every day, working in this industry. We also have knowledge of the production techniques. We

have the equipment we would use to produce this biodiesel along with the pre-treatment. This is typically not available in a research setting or a university.
Q: Does going around the world, looking for raw materials for biofuels have a reasonable chance of being economically feasible with those costs having skyrocketed?
A: I think that that's right because we're finding that raw materials grown in central Mexico can also be grown in the northwest because of growing technology that's now available. We may not be importing these products from very far away.
C: That's why I reacted to your worldwide search.
Q: What is the employment benefit going forward? What would be the impact to jobs?
A: Just within the plant itself is typically going to be 20-30 jobs depending on the size of the facility. Also with the facility, you're going to be bringing in all the raw materials so you're going to have trucking companies, logistics, you're going to have all the transportation associated with it along with finished goods going out. There's a substantial number of jobs that will be associated with this.

Yes – Barton, if applicant switches to half million in salaries, Hubbell, more appropriate to cover the cost of the researchers then the demolition/reconstruction (lab configuring) and being amiable to have university personnel coming to the facility to review/assist research, Hunter, likes Higby's idea of having work done in the universities but will agree with Hubbell's proposed conditions.
Table –
No – Higby, wants proposal to have component of project experts teaching in the colleges
A new proposal will go forward to the Power Fund Board

Review of Pre-Applications

1136 Reviewed by Barton

Not a new system.
No new research involved.

- Take their own processes but use anaerobic digestion which would be the largest in Iowa
- Amana would receive benefit of energy savings

Solids would be soil enhancers
Liquids would be used as fertilizer
Turned to a positive attitude because of anaerobic digestion component
Working anaerobic digester would be a good teaching tool as an integrated system.
Probably the only place in Iowa that could do this project
Public support would be there because Amana is already a tourist town
Even though it's existing technology, the scale would be a good promoter for the State of Iowa
Didn't see much difference between the new and old application

- Differences are within page 4

Yes – Barton, Higby, Hunter, Hubbell
Yes If –

No But –
No –

1078/1110 Reviewed by Hubbell

Applicant has taken all the issues that the committee had previously and has addressed them.
Fractionation already in POET Plant.
They've answered our questions nicely.
Would be inclined to give opportunity for full application.
Hedging fractionation bets in market industry looks good.

Yes – Higby, Hubbell, Barton, Hunter
Yes If –
No But –
No –

1137 Reviewed by Higby

(Used wind turbine models for demonstration)
What Dr. Wang is considering is completely different from the traditional idea of a commercial wind turbine.
What is being proposed is micro turbines with WAND technology.
Models work well.
When consulting with Dr. Tom Wind, he did not say if he thinks this project would become a viable, commercial product.
Curiosity has been peeked about what Dr. Wang has come up with.
Would like to see a full application.

Barton – Should be able to build project within a month, not a year
Higby – Project allows for multiple generation sites.

Yes –
Yes If – Higby, Barton, Hubbell if proposal is for less money and only one year
No But – Hunter, had trouble with agreeing with budget
No

1139 Reviewed by Barton

Project is about cellulosic ethanol
The release did not list plant operations
The project would be a research reactor
Two things come out of this proposal

- Integrated technology
- Full scale commercial plant by 2012

Going forward, there's no mention of Iowa receiving a long term benefit
Only making a three year commitment to the pilot plan in Iowa
This is a "big league" project but with that, it also brings big league issues

Did suggest that, with the $6 million from DED, Illinois is a favorable choice
Even if facility is built in Illinois, technology would be sold to Iowans
Debatable if the benefits are worth funding $16 million for project
Iowa Power Fund Board could issue applicant to knock down the requested dollar amount, not DDC
Would it be of an equal benefit to the ethanol industry?

- If it builds up the ethanol industry, it would be through increase of jobs

Higby – If we ask for a full application, we should ask for an educational component.

Yes –
Yes If – Barton, Codel, Hubbell, Hunter, Higby if applicant asks for smaller dollar amount, addresses IP timeline and addresses commitment to Iowa for full scale technology.
No But –
No –

Other Business

Ms. Higby brought up the issue of the Switchgrass applicant whose proposal was turned down by the DDC. Tom Wind wants to re-evaluate the application and have the proposal go before the Power Fund Board. Mr. Codel had raised the issue that the project had a very low rate of return and that, what he hadn't seen, was a solid business plan from the applicant. Ms. Higby stated that what she had heard were issues of recruiting enough farmers to plant the product as well as the cost of transportation and storage of the product from harvesting through production.

Ms. Higby then announced that the new Federal Farm Bill has biomass crop assistance built into the legislation that has set aside money for establishment payments for a project such as the one the DDC had reviewed. She believes, if the money's there, we should re-evaluate the applicant's proposal. Mr. Crowe said that it was very likely that the money wouldn't be available for another 6-8 months since it would take time for the program to be established first. Ms. Stanley said that in actuality, it could take up to two years before funds could be distributed. Ms. Higby urged that the information from this new Farm Bill be shared through the Office of Energy Independence.

The next meeting of the Due Diligence Committee will be July 23, 2008 in the Capitol Building, room 116. The time for the meeting is TBD.

Adjournment

4:33pm

Respectfully Submitted,

Mary Lewis, Recorder